

Microscopy

- A **microscope** (Greek: mikron = small and scopeos = to look).
- **Microscope:** It is an instrument for viewing objects that are too small to be seen by the naked or unaided eye.
- **Microscopy:** The science of investigating small objects using such an instrument is called microscopy.

Magnification

- Degree of enlargement.
- No of times the length, breadth or diameter, of an object is multiplied.
- It depends upon – Optical tube length Focal length of objective Magnifying power of eye piece.
- **Total magnification:** magnification of the eyepiece x magnification of the objective.
- **Resolution:** Ability to reveal closely adjacent structural details as separate and distinct.
- **Limit of resolution (LR):** The minimum distance between two visible bodies at which they can be seen as separate and not in contact with each other.

- $LR = (0.61 \div NA) \times W$
- W = Wavelength NA
- NA = Numerical aperature
- **Numerical aperture(NA):**
- Ratio of diameter of lens to its focal length –
- $NA = n \sin \theta/2$
- n = refractive index,
- θ = angle of aperture (CAD)
- **Resolving power:** The ability of an optical instrument or type of film to separate or distinguish small or closely adjacent images.

Anatomy of a Compound Microscope

